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Safety Management
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Safety Analysis
Warnings

Expert Testimony
Recalls

October 29, 2020

Joshua Licata, Esquire
Friday & Cox, LLC
1405 McFarland Road
Pittsburgh, Pennsylvania 15216

Re: Power v. Hewlett-Packard Company

Dear Mr. Licata,

The following report is preliminary and based on information available to date. The issues described below are subject to change as additional information becomes available.

Product Safety Management

Product safety management is a system that a reasonably prudent manufacturer puts in place before the first product is conceived to ensure that the final product, along with its warnings, packaging and marketing materials, is reasonably safe. It starts with a statement of commitment for product safety from top management and develops a company's procedures to identify hazards, assess the risk, apply adequate safety measures to eliminate hazards from the design, places a guard between users and potential injury and to warn users of all hazards that have not been eliminated or

adequately guarded through technically feasible and economically practical safety measures.

Product safety management theory has been published and reviewed by scholars in the field for over 50 years. As can be shown from the wide dissemination and acceptance by academia, business and legal professionals, these concepts are widely used and accepted throughout the safety community.

Safety management is primarily a tool to protect consumers before they purchase products. When used correctly, these principles are a reasonable model for injury prevention. It is only after an injury that they are applied to determine if the managers failed to apply the accepted principles.

When evaluating a company's product safety management program, it is incumbent upon a reasonably prudent manufacturer to apply the following accepted safety principles to ensure that the products are reasonably safe.

1. Establish and observe a written safety policy. This policy should emphasize commitment to safety. In writing, it will insure all employees obtain clear guidance on safety issues. The policy should set forth a method for discussing safety responsibilities.

2. Adequately identify and evaluate product hazards. A hazard is the inherent capability of a product to do harm. Manufacturers, distributors, and retailers must review the potential injury-causing energy and evaluate severity and foreseeability.

3. Perform an adequate risk assessment integrating product hazards, the environment, and foreseeable consumer use. Once hazards are identified, the reasonably prudent manufacturer/distributor/retailer must consider the conditions of use under which the injury-causing mechanism (hazard) can cause harm to the user.

Analysis of the environment where the product will foreseeably be used, especially in light of product promotion, is critical in discerning how the consumer may foreseeably use the product, even if it is not the use intended by the manufacturer.

The product must be reasonably safe prior to distribution in commerce. If it is not possible to eliminate the hazard, the reasonably prudent manufacturer, distributor, and retailer must take steps to guard against the hazard, to adequately inform users of the danger inherent in the product, and to motivate them to avoid that danger.

4. Monitor the safety performance of the product after sale and use, and take corrective action where necessary. Once products are distributed to consumers, a responsible manufacturer/distributor/retailer must determine where injuries can occur, or if a product defect (including lack of adequate labeling and safety information) could create injuries. Where corrective action is needed to substantially reduce or eliminate injuries, consumer notification and additional corrective measures must be implemented to insure consumer safety.

5. Develop adequate warnings and training to motivate consumers to understand and avoid dangers. This is critical and relatively inexpensive. When consumers have sufficient data to make an informed decision about safety, they are in a better position to address safety issues.

* * * * *

A key precept of safety management concerns products with inherent capability to do catastrophic harm. In priority order, the duty of a reasonably prudent manufacturer is to eliminate the hazard, or, if this is not possible while preserving utility, guard against the hazard. At a minimum, the manufacturer must properly inform users of the danger inherent in the product and motivate them to avoid injury.

The first concept is the safety engineering hierarchy of priorities:

- Eliminate hazards
- When hazards cannot be eliminated, provide feasible safeguards against them
- Provide warnings and personal protective equipment against remaining hazards

National Safety Council
Product Safety Management Guidelines, 1989

* * * *

In 1931, H. W. Heinrich, Assistant Superintendent for the Engineering and Inspection Division of the Travelers Insurance Company published the primary modern text of Safety Management, *Industrial Accident Prevention, A Scientific Approach*. The results of his in-depth analysis of more than 5000 accidents revealed four fundamental principles of scientific accident prevention:

1. Executive interest and support
2. Cause-analysis
3. Selection and application of remedy
4. Executive enforcement of corrective practice

These concepts, developed by Heinrich for the Joliet Steel Works, have evolved into modern day safety management practices. Scholarly research has further developed the foundation for safety management practices.

The Consumer Product Safety Commission incorporated these principles in its 1975 publication, updated in 2006, *Handbook and Standard for Manufacturing Safer*

Consumer Products. The Commission addressed executive action, design review, distribution and corrective action.

In 1983, Harold Roland of the University of Southern California Institute of Safety and Systems Management and Brian Moriarty authored *System Safety Engineering and Management*, outlining the need for product safety policy and analysis to prevent injuries. They evaluated hazard identification, severity and a systematic approach to identify defects.

The National Safety Council first published *Product Safety Management Guidelines* in 1989 describing the relationship between marketing, manufacturing, and safety communications as a key to corporate accident prevention. Their analysis includes the hierarchy of safety management and prevention programs to substantially reduce or eliminate injuries.

Background and Qualifications

I am a Board Certified Product Safety Manager and Hazard Control Manager. I hold an Executive Certificate in Safety Management from the American Society of Safety Engineers, and I am a member of the Human Factors and Ergonomics Society. I hold a Certificate in Risk Communication from the Harvard School of Public Health. For the past 30 years, I have provided risk assessment and product safety management services to attorneys, corporations and government organizations.

From 1974 to 1981, I worked at the U.S. Consumer Product Safety Commission (CPSC), part of which time I served as Legal Advisor to the Director, Office of Product Defect Identification, and was responsible for identifying products which contained a defect which could create a substantial product hazard, developing voluntary corrective action plans under Section 15 of the Consumer Product Safety Act including

the recall of substantially hazardous consumer products, and notification to the public of the danger through warnings and other media. (See attached Curriculum Vitae).

As CPSC *Program Manager for Sports, Recreation and Power Equipment* (1977-1980), I supervised a team of engineers, epidemiologists, human factors specialists, and technical communication staff in the evaluation of injury statistics, engineering data, and product use information to achieve a reduction in consumer products injuries. Injury prevention tools combined mandatory and voluntary standards, on-product warnings, and safety education campaigns resulting in publication of the *Federal Safety Standard for Walk-Behind Power Lawn Mowers 16 CFR 1205* (1979). I served as Commission representative to various industry groups and standards development committees, including American National Standards Institute (ANSI), American Society for Testing & Materials (ASTM), the Outdoor Power Equipment Institute and the Sporting Goods Manufacturers Association.

I have been retained as a consultant for a number of major manufacturers, including the *Toro Company* on product safety issues, the *Vendo Company* for developing warning labels and safety bulletins, the *Jensen Corporation* for warnings and safe operation of industrial equipment, *Nobel Chemical Company* for adequacy of warnings, *Corning Glass* for evaluation of recalls, *BernzOmatic*, a division of the Newell Group, for development of point-of purchase recall displays, warnings, and advertising, *Arctic Cat, Inc.* for analysis of all-terrain vehicle off-road safety, including owner's manuals, instructions, warnings and foreseeable use, and *Visioneer, Inc.* in developing a program to upgrade computer scanners. I have developed a program for *Global Industries* to improve executive chair stability, reviewed warnings on heavy equipment for *Daewoo Heavy Industries America*, investigated safety issues for *Carson Industries, Inc.* and assisted *CISCO Systems* in recall development. I have designed a warning label for *Whisper Communications, Inc.*, and assisted *Wham-O, Inc.* in recall procedures. I have provided risk analysis, recall assistance and consumer warnings and instructions to *Restoration Hardware, Inc.*, have developed warnings for *Plastics Research Corp.* concerning use of decorative building materials as protective barriers. I have reviewed

advertising and promotional material for *ACH Foods* and assisted *Hilton Hotels* on recall issues. I have advised *Swimways Corporation* on product safety management and warnings. I have advised *AsiaEXP* on risk assessment, labeling and product standards and have assisted *Dick's Sporting Goods* in developing safety communications and warnings. I served as Product Safety Coordinator for compliance with a Department of Justice/CPSC Consent Agreement and Order for *LM Imports*. For *Rollz International* (Netherlands), I revised the user manual for American and Canadian markets. I provided research and analysis on ATV safety for the National Association of Attorneys General and served as the Chairman of the *Florida Consumer's Council* (1993-2007).

I have developed on-product warnings and instructions for a number of manufacturers and distributors. A few examples include:

- Vendo Company for vending machine warnings
- Arctic Cat, Inc. for ATV's
- Whisper Communications for electrocution hazards
- Plastics Research Corp. for building material warnings
- Daewoo Heavy Industries America for labeling of heavy machinery
- Swimways Corporation for warnings on children's pool products
- Dick's Sporting Goods for fitness equipment

I have lectured at the National Safety Council Annual Congress and Exposition on the following topics:

- When Risk Can't Be Eliminated: Building Adequate Warnings, Los Angeles, California, 1998
- Injury Prevention Analysis: Guidelines for Product Safety Managers, Chicago, Illinois, 1997
- Post Sale Corrective Action Plans - Recalls and Consumer Notice, Orlando, Florida, 1996

I have also addressed industry groups on warnings issues for the International Consumer Product Health and Safety Organization and the CPSC.

In 1991, I wrote an article for Professional Safety, the Journal of the American Society of Safety Engineers (ASSE), entitled *Safety Management and the Consumer Product Safety Commission*. Reviewed and accepted by the ASSE editorial board, the section on warnings reads in part:

VI. Warn users of product dangers and motivate them to avoid injury.

In addition to hazard elimination, product warnings and instructions must help the user avoid dangers, including those that remain after thorough attempts to eliminate or guard. An explicit warning that includes a signal word, statement of the hazard, appropriate behavior and description of the danger's consequences is required. A pictogram illustrating consequences often helps communicate the danger, especially to those who cannot read.

Incident

In April of 2013, Thomas Power purchased an HP EliteBook 8730w on eBay. It came with an HP AC adapter and a battery pack which he never removed. He always operated the EliteBook plugged into the AC power adapter. After operating uneventfully for over 2 years, he had the laptop on his lap using the wifi signal at a fitness center when the battery pack exploded, suddenly and without warning. The EliteBook exploded ultimately three times, severely burning his legs.

HP Engineers

- Battery cells manufactured by Sony for HP 8730w laptop.
- Battery pack at the time of the incident was not the original HP product.
- Label on the battery pack inside the notebook states “replace with HP spares.”
- Aware that there are non-HP approved battery packs that can fit in the notebook.
- HP designs the notebook to interact specifically with HP approved battery packs.
- Notebook communicates with the user via a pop-up message if the battery has lost enough capacity and it would suggest to the user to consider replacing the battery.
- Notebook does not notify user if installed replacement battery is not HP approved.
- Battery authentication was not industry standard in 2008.
- No authentication standard today.
- Industry moving to non-replaceable batteries.
- Does not know if there is a built in battery utility to monitor and inform user of temperature.

Kenneth J. Kutchek, P.E.

- Inspected the subject HP notebook on December 19, 2019.
- HP notebook battery pack used eight 18650 lithium ion cells.
- Two of the eight battery cells experienced thermal runaway and exploded.
- Subject battery pack did not appear to contain Sony 18650 cells.

Pertinent Facts

- HP is well aware that “third party” (non-HP) batteries are used in HP products and throughout the industry.
- HP works closely with third party battery suppliers to help deliver higher levels of safety and reliability for “compatible” batteries.
- HP works to insure continuous safety for third party batteries.
- HP provides Material Safety Data Sheets for third party (non-HP) replacement batteries.
- In spite of this, HP states that only batteries purchased from HP should be used as replacements.
- HP lists the following third party (non-HP) batteries specifically for use with the EliteBook 8730w:
 - Samsung
 - LG Chem
 - EOne
 - Sanyo
 - Sony
- Third party battery sellers use the HP Elite battery pack Original Equipment Manufacturer (OEM) part number 458274-421 to promote their HP “compatible” battery sales.
- Third party battery sellers advertise replacement batteries specifically for the HP EliteBook 8730w.
- One seller advertises:

Best battery replacement EliteBook 8730w pack
Manufactured to meet or exceed original

Can be used as spare

100% compatible with original battery (UK)

- Duracell advertises 100% compatible HP 458274-421 battery-- CE, FCC and RoHS approved.
- At least one reseller actually use HP logo in their online promotion of “compatible” replacement batteries.
- The official HP store advises customers with older computers to “search on a third party website” if you need to replace an older computer battery.
- HP states that software in your system is only set up to read original equipment manufacturer’s battery. It can cause the replacement battery to communicate incorrectly.
- Replacement non-HP battery manufacturers can spend years to “create the code” so that compatible batteries can properly communicate. (The battery in Mr. Power’s laptop operated for two years without incident.)
- Official HP Support Community responder (Level 17) recommends removing the battery if laptop is connected to power all the time.
- Dell FAQ specifically states that a non-Dell or incompatible battery may increase the risk of fire or explosion.
- HP states that to reduce potential safety issues, use only the battery provided with the computer, a replacement battery or compatible battery provided by or purchased from HP. HP does not warn of fire or explosion hazard.
- From 1999-2003, computers were involved in an estimated 240 structure fires per year (National Fire Protection Association).
- Beginning in late 2008, HP notebook with Unified Extensible Firmware Interface (UEFI) included pop-up message 605 -- Battery Counterfeit Check Error when it detects a non-HP battery. User is instructed to contact HP.

- Between 2005 and 2011, HP conducted 6 recalls in conjunction with the Consumer Product Safety Commission involving batteries overheating, melting, charring and causing fires in HP notebooks. The recalls included both Sony and non-branded batteries made in China.
- HP laptops recalled totaled approximately 400,000 domestically and another 61,600 internationally. The recalls included replacement battery packs sold by HP. CPSC press releases identified approximately 120 actual incidents.
- By 2011, CPSC had recalled over 4 1/2 million batteries worldwide installed on all manufacturers notebooks worldwide. Sony batteries in Dell computers accounted for the substantial majority.
- In 2012, HP agreed to pay a \$425,000 civil penalty to the Consumer Product Safety Commission for failure to report that they knew of 22 battery incidents by September 2007 but HP did not notify the CPSC about the incidents until July 2008. HP had conducted a study and obtained additional information about battery packs in 2007.

Opinions

The opinions contained herein are stated to a reasonable degree of certainty in the areas of safety management, warnings and safety communications.

1. Hewlett-Packard Company (HP) failed to act as a reasonably prudent manufacturer to adequately protect computer users from severe burn injuries associated with the foreseeable use of their laptop/notebook computers with replaceable batteries.

2. HP failed to warn HP notebook owners of the dangers of fire, burns and explosions associated with HP's belief that "non-compatible" replacement battery packs create "potential safety issues." HP never warned notebook users that use of "non-compatible" battery packs would increase the risk of fire and explosion.

3. HP never clearly identified which battery packs were compatible and which were not compatible. Many aftermarket battery packs were advertised and promoted as HP replacement batteries or HP “spares,” and at least one reseller included the HP logo on their website.

4. By late 2008, HP developed a battery authentication system for certain laptops to identify “counterfeit” battery packs, yet the subject HP EliteBook did not include such system to identify non-HP batteries.

5. There is no readily available evidence that HP took corrective steps to assist users in selecting only HP approved replacement or “spare” battery packs. Many resellers advertise and promote “HP replacement batteries” specific to HP notebook models. Resellers, including WalMart, use specific HP part number, such as HP 458274-421 for use with the EliteBook 8730w. These batteries are marked CE and RoHS certified.

Documents on HP.com

HP Battery Information Center / HP Official Site
<https://www8.hp.com> . . .

Battery Safety

HP takes safety very seriously and makes battery Material Safety Data Sheets (MSDS) available that provide general safety information about the *third party (non-HP) batteries used in HP products and throughout the industry*. In addition, HP works closely with third party battery suppliers to drive continuous safety and design improvements that help deliver higher levels of safety and reliability. In the unlikely event of a potential safety issue, HP uses proven best-in-class processes and works closely with the appropriate worldwide regulatory

agencies to help deliver the highest possible level of safety and best customer experience. [emphasis added]

Only the battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased as an accessory from HP should be used with the computer.

SDS: HP Battery Packs -- Notebooks and Tablets

<http://h22235.www2.hp.com> . . .

These Safety Data Sheets are only authorised for use by HP for HP Original products. Any unauthorised use of this Safety Data Sheet is strictly prohibited and may result in legal action being taken by HP.

95Wh SDI 2.2Ah	HP EliteBook 8730w	411638-343 (Samsung)
95Wh Sony 2.2Ah	HP EliteBook 8730w	411638-363
95Wh Sony 2.2Ah	HP EliteBook 8730w	411638-364
73Wh SDI 2.55Ah	HP EliteBook 8730w	458274-343 (Samsung)
73Wh SDI 2.55Ah	HP EliteBook 8730w	458274-344 (Samsung)
73Wh Sony 2.55Ah	HP EliteBook 8730w	458274-363
73Wh Sony 2.55Ah	HP EliteBook 8730w	458274-364
73Wh LGChem 2.55Ah	HP EliteBook 8730w	458274-423
59Wh EOne Moli 2.0Ah	HP EliteBook 8730w	458639-212
59Wh Sanyo 2.0Ah	HP EliteBook 8730w	458639-252
59Wh EOne Moli 2.0Ah	HP EliteBook 8730w	458639-313
59Wh Sanyo 2.0Ah	HP EliteBook 8730w	458639-353

HP Power Management User Guide

(HP000167, 000180)

When a charged battery is in the computer and the computer is not plugged into external power, the computer runs on battery power. When the computer is plugged into external AC power, the computer runs on AC power.

WARNING! To reduce potential safety issues, use only the battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

HP Notebook PCs - 601 or 60X Error Displays on a Black Screen
<https://support.hp.com>

This document pertains to HP notebook computers with the HP Unified Extensible Firmware Interface (UEFI) beginning in late 2008.

On startup, the computer performs a battery check by examining the remaining capacity of the primary battery as well as the capacity of any secondary battery that may be installed.

If the system detects that the storage capacity of the battery is very low, it displays one of the following alerts.

HP Battery Alert

BIOS has detected that the capacity of the internal battery has been reduced. This may be caused by environmental factors such as low ambient operating temperatures, or it could be due to aging of the battery pack. Operating your system in a warmer location or operating your unit for a while might resolve this condition. If the condition persists or if you have an older system, please contact HP service.

HP Battery Alert

The system has detected the storage capacity of the battery stated below to be very low. For optimal performance, this battery may need to be replaced.

Differences between battery messages

- 601: If Primary (internal) Battery (601) appears in the alert message, it means the measured storage capacity of the primary (internal) battery is less than 25% of the original storage capacity. The number “601” denotes the associated error code that is recorded in the system log.
- 605: Battery Counterfeit Check Error (605) – A non-HP battery was detected. If you purchased the battery from a reseller, contact HP.

HP Store

<https://store.hp.com> . . .

How to Perform an HP Laptop Battery Replacement

1. Purchase a new HP laptop battery

If you're not sure how to find a replacement battery for an HP laptop, you have a couple of options:

- Use the battery finder tool to find the right replacement
- *If you need to replace an older computer's battery, perform a search on a third-party website* [emphasis added]

Solved: Can I use the laptop without the battery?

HP Support Community - 1208391

<https://h30434.www3.hp.com> . . .

- Posted on 01-18-2012

Yes you can. In fact, it is recommended to remove the battery if the laptop is connected to power all of the time
[CherylG, Level 17]

Third Party Reseller Documents

Ebay

[ebay.com](https://www.ebay.com)

Genuine HSTNN-XB60 HSTNN-LB60 Battery for HP EliteBook 8540p 8540w
458274-421

Superb Choice
walmart.com

Superb Choice 8-cell HP 458274-421 Laptop Battery

Type: Li-Ion Voltage: 14.4V Capacity: 4400mAh; 8 cells

High capacity battery certified by CE and RoHS, This battery was tested and proven to match and/or exceed original specifications of HP products

Replacement For: HP 458274-421

Fit Machine Models: HP EliteBook 8730w

Manufacturer: Discountbatt

HP 458274-421 Battery
duracelldirect.com

Duracell 458274-421 Battery
Main Battery Pack 14.8V 5200mAh
77Wh
HP 458274-421 Battery

Built to Last

Your Duracell Laptop Battery is created from components unrivaled in quality, guaranteeing great performance with every use, time and time again.

Increased recharge cycles and extended discharge times provide you with longer uncorded usage and a battery that lasts for just as long as the original.

Safer by Design

Internal safety features safeguard your laptop and accessories with built-in current, overheat and short circuit protection. Comprehensive testing of our batteries throughout the manufacturing process ensures every aspect of their function is optimised and triple-protected.

We've Got you Covered

Duracell laptop batteries are build to last, giving you dependable mobile power when you need it most.....charge after charge.

- Dependable Mobile Power - From the US's No. 1 Consumer Battery Brand.
- 100% compatibility, guaranteed. CE, FCC &RoHS approved.
- Built-in protection against over-charge, over-voltage and over-current to protect your laptop.
- Outstanding warranty and US support from the Duracell Charge team.

Laptop Battery Express HP Hewlett Packard

www.laptopbatteryexpress.com

Uses HP logo

Laptop Battery Express features premium Xtend brand batteries. Inside are Samsung's best rechargeable lithium-ion cells & Texas Instrument chip sets

“HP EliteBook Series”

HP Laptop Batteries and Chargers

Extend your battery run time and improve the performance of your HP laptop with a new replacement HP laptop battery from Laptop Battery Express.

All our Hewlett Packard batteries and chargers are backed by a 2 year warranty and 30 day money back guarantee.

Our HP laptop batteries are manufactured to precisely fit just as your original HP battery.

Best HP EliteBook 8730w Battery --
HP Battery Replacement EliteBook 8730w Pack
<https://www.atlaptopbattery.co.uk> . . .

HP EliteBook 8730w Battery Information

This high capacity rechargeable replacement battery, brand new replacement that is manufactured to meet or exceed the specifications of the HP elitebook 8730w original battery, can be used as an HP spare original battery to keep you staying unplugged longer.

100% compatible with your original elitebook 8730w HP laptop battery.

HP EliteBook 8730w LHP228
battdepot.com

Replacement Notebook Battery for HP EliteBook 8730w 14.4 Volt Li-ion Laptop Battery (4400mAh / 63Wh)

Additional Documents

HP Laptop Battery Troubleshooting Tips
<http://laptopbatteryonline.com/hp-laptop-battery-troubleshooting-tips>

Battery is not charging at all or showing that it is not compatible

The problem may be with the computer BIOS and an update is required for the laptop to recognize and fully charge the laptop battery. The current software in your system is only set up to read an OEM (Original Equipment Manufacturer) battery. If your BIOS has not been updated, and you have only used OEM batteries in your laptop, it can cause the replacement battery not to communicate correctly with the software in your system.

Check your manufacturer's website for possible system BIOS upgrades for your laptop model. Some laptops have been prone to reject third party batteries if they have an old BIOS version installed. Once completing the BIOS upgrade, please recharge your battery for 12 hours and use as normal.

Dell Laptop Battery -- Frequently Asked Questions

<https://www.dell.com>

Caution: Using a non-Dell or incompatible battery may increase the risk of fire or explosion. Replace the battery only with a compatible battery purchased from Dell that is designed to work with your Dell computer. Do not use a battery from other computers with your computer.

How to Install a non-Dell battery on a Dell Laptop?

Dell has a rigorous qualification process by which all Dell batteries are validated to ensure proper functionality, performance, and safety. Dell strongly recommends using a compatible Dell battery that is purchased from Dell that is designed to work with your Dell laptop.

Some non-Dell batteries are available in the market with claims of compatibility with Dell laptops. Dell cannot verify these claims, nor the safety of using them on a Dell laptop.

Dell laptop batteries come with a 1-year warranty, are engineered for optimal safety and performance with a compatible Dell laptop, and are supported by Dell Technical Support for the length of the warranty period.

Computer and Computer Peripheral Fires with a Discussion of Batteries
Fire Analysis and Research Division
National Fire Protection Association
August 2006

During 1999-2003, computers were involved in an estimated average of 240 reported structure fires per year.

Recalls and Press Releases

October 14, 2005

www.cpsc.gov

CPSC, Hewlett-Packard Company Announce Recall of
Notebook Computer Batteries

Name of Product:

HP and Compaq Notebook Computer Battery Packs

Units:

About 135,000 battery packs worldwide, including about 85,000 in the U.S.

Hazard:

An internal short can cause the battery cells to overheat and melt or char the plastic case, posing a burn and fire hazard.

Incidents/Injuries:

HP has received 16 reports of batteries overheating, including four in the U.S. No injuries have been reported. Four cases of minor property damage were reported, including one in the U.S.

Description:

The recalled lithium ion rechargeable battery packs are used with various HP and Compaq notebook computers. The recalled battery packs are a subset of those manufactured March 2004 through September 2004.

Sold at:

National and regional computer and electronics stores, online stores, hp.com and hpshopping.com from March 2004 through May 2005 for between \$1,000 and \$3,000. The battery packs also were sold separately for between \$100 and \$130.

Manufactured in:

Battery packs manufactured in China and Taiwan.

April 20, 2006

www.cpsc.gov

HP Recalls Notebook Computer Batteries Due to Fire Hazard

Description:

The recalled lithium ion rechargeable batteries are used with various HP and Compaq notebook computers. The recalled batteries are a subset of those manufactured in early January 2005, and will have a bar code label starting with L3. HP and Compaq Notebook Model Series that may contain a recalled battery include . . .

Units:

About 4,100 (about 15,700 batteries worldwide)

Incidents/Injuries:

HP has received 20 reports of batteries overheating, including two in the United States. One minor burn injury has been reported. Eleven cases of minor property damage were reported, including one in the United States.

Hazard:

An internal failure can cause the battery to overheat and melt or char the plastic case, posing a burn and fire hazard.

Sold at:

National and regional computer and electronics stores, online stores, hp.com and hpshopping.com from January 2005 through December 2005 for between \$1,000 and \$3,000. The battery packs also were sold separately for between \$100 and \$130.

October 30, 2008

www.cpsc.gov

PC Notebook Computer Batteries Recalled Due to Fire and Burn Hazard

Name of Product:

Lithium-Ion Batteries used in Hewlett-Packard, Toshiba and Dell Notebook Computers

Units:

About 35,000 batteries (an additional 65,000 batteries were sold worldwide)

Battery Cell Manufacturer:

Sony Energy Devices Corporation, of Japan

Hazard:

These lithium-ion batteries can overheat, posing a fire and burn hazard to consumers.

Incidents/Injuries:

There have been 19 reports of the batteries overheating, including 17 reports of flames/fire (10 resulting in minor property damage). Two consumers experienced minor burns.

Description:

The recalled batteries were included with, and sold separately for use in, the following notebook computer models:

Hewlett-Packard About 32,000 units

Sold by:

Hewlett-Packard sold from December 2004 through June 2006

October 30, 2008

www.eweek.com

Sony, HP, Dell, Toshiba Recall Thousands of Faulty Lithium-Ion Laptop Batteries

Sony, Hewlett-Packard, Toshiba and Dell are recalling as many as 100,000 laptops worldwide that used faulty Sony-made lithium-ion battery packs. In the U.S., this could impact about 35,000 notebooks that were sold between 2004 and 2006. So far, the U.S. Consumer Product Safety Commission said there have been 19 incidents of overheating and two people injured. The recall is similar to one in 2006 that involved millions of notebooks.

The difference between this recall and the 2006 recall is size. While the Oct. 30 recall involves about 35,000 notebooks in the United States and another 65,000

throughout the world, the 2006 recall involved millions of notebooks and battery packs worldwide. Dell recalled about 4 million notebook battery packs by itself in 2006.

HP sold about 32,000 notebooks with the faulty battery packs, while Toshiba sold about 3,000 and Dell accounted for only about 150 total notebooks.

May 14, 2009

www.cpsc.gov

HP Recalls Notebook Computer Batteries Due to Fire Hazard

Name of Product:

Lithium-Ion batteries used in Hewlett-Packard and Compaq notebook computers

Units: About 70,000

Hazard:

The recalled lithium-ion batteries can overheat, posing a fire and burn hazard to consumers.

Incidents/ Injuries:

The firm and CPSC are aware of two reports of batteries that overheated and ruptured, resulting in flames/fire that caused minor property damage. No injuries have been reported.

Sold at: Computer and electronics stores nationwide, hp.com and hpshopping.com from August 2007 through March 2008 for between \$500 and \$3000. The battery packs were also sold separately for between \$100 and \$160.

Manufactured in: China

May 21, 2010

www.cpsc.gov

HP Expands Recall of Notebook Computer Batteries Due to Fire Hazard

Name of Product:

Lithium-Ion batteries used in Hewlett-Packard and Compaq notebook computers

Units: About 54,000 (70,000 units were previously recalled in May 2009)

Hazard:

The recalled lithium-ion batteries can overheat, posing a fire and burn hazard to consumers.

Incidents/ Injuries:

Since the May 2009 recall, HP has received 38 additional reports of batteries that overheated and ruptured resulting in 11 instances of minor personal injury and 31 instances of minor property damage.

Sold at: Computer and electronics stores nationwide, hp.com and hpshopping.com from August 2007 through July 2008 for between \$500 and \$3000. The battery packs were also sold separately for between \$100 and \$160.

Manufactured in: China

May 27, 2011

www.cpsc.gov

HP Expands Recall of Notebook Computer Batteries Due to Fire Hazard

Description:

The recalled lithium-ion rechargeable batteries are used with various model series of HP and Compaq notebook computers and include batteries that consumers were informed were not included in previous recalls

Units: About 162,600 additional batteries (54,000 and 70,000 batteries were previously recalled in May 2010 and May 2009, respectively.

Hazard:

The recalled lithium-ion batteries can overheat and rupture, posing fire and burn hazards to consumers.

Incidents/ Injuries:

Since the May 2010 recall expansion, HP has received 40 additional reports of batteries that overheated and ruptured, resulting in seven burn injuries, one smoke inhalation injury, and 36 instances of property damage.

Sold at: Computer and electronics stores nationwide, hp.com and hpshopping.com from July 2007 through July 2008 for between \$500 and \$3000. The battery packs were also sold separately for between \$100 and \$160.

Manufactured in: China

January 23, 2012

CPSC Press Release

Hewlett-Packard Agrees to \$425,000 Civil Penalty for Failure to Immediately Report Lithium-Ion Battery Packs

The U.S. Consumer Product Safety Commission (CPSC) announced today that Hewlett-Packard Company (HP), of Palo Alto, Calif., has agreed to pay a civil penalty of \$425,000. The settlement agreement (pdf) has been provisionally accepted by the Commission (3-1).

CPSC staff alleges that by September 2007, HP knew of about 22 incidents associated with the lithium-ion battery packs. CPSC staff also alleges that between March 2007 and April 2007, HP conducted a study, from which it obtained additional information about the lithium-ion battery packs.

HP did not notify the Commission about the incidents or the study until July 25, 2008. By that time, CPSC staff alleges that the firm was aware of at least 31 incidents involving the lithium-ion battery packs.

In October 2008, HP and CPSC announced a recall of about 32,000 lithium-ion battery packs. Lithium-ion battery packs that were sold separately for use with the notebook computers retailed for between \$100 and \$160.

August 15, 2006

CPSC Press Release

Dell Announces Recall of Notebook Computer Batteries
Due to Fire Hazard

Name of Product:

Dell-branded lithium-ion batteries made with cells manufactured by Sony

Units:

About 2.7 million battery packs (an additional 1.5 million battery packs were sold outside the U.S.)

Battery Cell Manufacturer:

Sony Energy Devices Corp. of Japan

Hazard:

These lithium-ion batteries can overheat, posing a fire hazard to consumers.

Incidents/Injuries:

Dell has received six reports of batteries overheating, resulting in property damage to furniture and personal effects. No injuries have been reported.

Sold through: Dell's website, phone and direct sales and catalogs from April 2004 through July 2006.

Warning Documents

Zurich-American Technical Topics
Product Warnings, 1988

Introduction:

Adequate warnings and instructions are an important part of product safety. The warnings help the end user of product to avoid an unsafe use of the product. Warnings should be used for the hazards which are inherent and also for any residual hazards in an otherwise well designed product. They should not be used as a substitute for a safer alternative design. Warning is

always second best to the actual elimination of the hazard in the product. The warning message should be firmly attached to the product itself.

Duty to Warn:

The duty to warn arises when the danger presented by the product is beyond what is contemplated by the average user possessing the ordinary knowledge common to the community.

A manufacturer must provide adequate warnings against dangers which are:

- Reasonably foreseeable in normal use of the product . . .

The manufacturer should not overestimate the intelligence, experience, knowledge and the training of an average user. The average user may still not fully appreciate or comprehend the extent of the danger and so the manufacturer has the duty to provide the adequate warnings even for the open and obvious dangers.

Key Elements of a Warning

Signal Word: signifies the intensity of the hazard

DANGER: Imminent hazards which will result in severe personal injury or death.

WARNING: Hazards or unsafe practices which could result in severe personal injury or death.

CAUTION: Hazards or unsafe practices which could result in minor personal injury or product or property damage.

Statement of Hazard:

This should be specific, clear, concise and aimed at the intended audience. It should take into account the reading and comprehension skills of the product user and also avoid any ambiguities and double meanings. The words like prolonged, short, and periodic are vague and should be avoided. The warning message should be in bold type and highlighted to draw attention.

Avoidance Instruction:

This part of the warning provides specific information on how to avoid the hazard. “Avoid breathing vapors” or “Use in well ventilated area” are poor

examples of avoidance instructions compared to the recommendation for using specific personal protective equipment.

Consequences:

This describes the consequences if the warnings are not heeded. The information in this part of the warning points to the type of injury including target organ and its seriousness and plays an important part in the perception of the user regarding the magnitude and consequences of the hazard.

Effectiveness of Warning

Location:

Warning should be placed where it is needed in relation to visibility, work position, proximity, response time and other considerations. Some of the examples of improper placement of warnings include:

- Warnings placed on the rear panel when the machine is installed against a wall.
- Warnings placed on a removable guard or an enclosure panel.
- Warnings on a component part which is installed inside a machine assembly.

ANSI Z535.4 Standard for Product Safety Signs and Labels--2007

The industry developed voluntary ANSI Z535.4 Standard for Product Safety Signs and Labels, first published in 1991 provides companies with clear guidelines for developing warnings.

2.1 Scope

This standard sets forth performance requirements for the design, application, use, and placement of safety signs and labels intended to identify potential hazards for persons using, operating, servicing, or in proximity to, a wide variety of products

4.11.2 **product safety sign or label:** Sign, label, cord tag, or decal affixed to a product that provides safety information about that product. The product safety sign should identify the hazard, the degree or level of hazard seriousness, the probable consequence of involvement with the hazard, and how the hazard can be avoided.

4.11.2.1 **permanent safety sign or label:** Information affixed to a product to warn against potential exposure to hazards inherent in the normal use associated with the product, or which might be created during other reasonably anticipated product use or misuse. The sign or label is to be permanently affixed to the product so that it cannot be easily removed.

9.1 **Location**

Product safety signs and labels shall be placed such that they will: (1) be readily visible to the intended viewer and (2) alert the viewer to the hazard in time to take appropriate action.

Warning consumers about hazards inherent in normal use as well as reasonably anticipated product use or misuse is critical to an adequate warning. Specific description of hazards and potential consequences can inform users of dangers they might otherwise fail to appreciate.

Westinghouse Product Safety Label Handbook

In 1985, the Westinghouse Electric Corporation published their Product Safety Label Handbook and developed a system for adequate warnings. Their 7 basic label elements included:

- Signal Word
- Hazard Alert Symbol
- Color
- Symbols and pictographs
- Identification of the hazard

- Result of ignoring the warning
- Avoiding the hazard

Finally, as a corporate citizen, Westinghouse addressed the need to warn product users of dangers discovered after sale.

If a hazard is discovered after a product is sold, the manufacturer should consider informing product users or other appropriate persons about the risk. In some cases the product may have to be modified. In other cases, it may be advisable to create a safety label.

National Safety Council
Product Safety Management Guidelines, 1989

A manufacturer must warn or instruct when:

- The product has significant injury potential, that is, has significant risk of injury, and
- The manufacturer knows or should have known of the risk of injury, and
- The expected or typical user is unaware of the danger and does not normally guard against it.

The product safety coordinator should, with the aid of engineering or other departments, if necessary, review all product communications and make sure that warning messages contained therein fulfill the following three requirements:

- 1) Warnings must clearly describe the possible consequences, especially personal injury, of not heeding the warning, when the consequence is not obvious.

- 2) Warnings must clearly and understandably inform the user what to do or not to do to avoid injury, when avoidance procedures are not obvious.
- 3) Warnings must identify all hazards that are not obvious.

For warning signs appearing on the product itself, two additional requirements apply:

- 1) The sign must be located on the product so the warning is conspicuous.
- 2) The sign must be constructed so it lasts and is visible for the intended life of the product.

Explicitness of Consequence Information in Warnings

Kenneth Laughery et al., 1993

Another critical issue to consider in developing warnings is explicitness. The more explicit the message, the greater the perception of severity, which creates a greater intent to act cautiously according to research done by Kenneth Laughery at Rice University in 1993. This study found that “When the severity of the potential hazard is great, only explicit information conveys severity information adequately.” Further, the study states:

Without exception, explicit warnings were associated with perceptions of greater injury severity and perceived dangerousness, greater manufacturer’s concern for safety, and better understanding of the hazards.

Explicitness was defined as the specificity or detail with which potential injury consequences were described.

Results indicated that more explicit warnings were associated with greater levels of perceived dangerousness, hazard understanding, injury severity, and manufacturers’ concern.

It is recommended that product warnings should be explicit regarding injury consequences, especially where injuries may be severe. Given such information, product users, particularly those less familiar with a product, are more likely to exercise greater caution during use. Further, manufacturers' concern that explicit warnings may negatively impact sales appears to be unwarranted.

Discussion

Knowledge of battery pack fires in HP notebooks

Between 2005 and 2011, millions of laptops or notebook computers have been recalled by manufacturers in cooperation with the Consumer Product Safety Commission for fires, explosions, burns or overheating. This includes over 400,000 HP laptops in connection with over 100 reported incidents. Sony batteries, which were originally installed in the subject EliteBook 8730w, were subject to the vast majority of recalled batteries in Dell notebooks. The 400,000 HP recalled notebooks were identified with both Sony and non-branded batteries, including HP OEM replacement batteries. It was clear to HP as early as 2006 and again in 2008 when their first two notebook batteries were recalled that OEM HP installed batteries could cause fires and burns.

What in fact is a “compatible” battery and is it more likely to cause a fire or explosion?

The HP Battery Information Center / HP® Official Site under the heading Battery Safety states that HP works closely with suppliers of third party (non-HP) batteries used in HP products and through the industry to drive continuous safety and design improvements that help deliver higher levels of safety and reliability. Yet at the same time, HP states that only batteries purchased from HP should be used.

The HP Power Management User Guide further states “To reduce potential safety issues,” consumers should only use batteries purchased from HP.

Yet HP is fully aware that resellers on the internet are advertising and promoting HP batteries, using the HP logo, their registered mark and the OEM part number to sell 100% HP compatible replacement batteries. They cite certification to the CE and RoHS requirements. I have not located any readily accessible documentation that evidences any action by HP to prevent resellers from making such claims.

And in fact, the official HP store advises customers with older computers to “search on a third party website” if you need to replace an older computer battery.

The industry developed voluntary ANSI Z535.4 Standard for Product Safety Signs and Labels, lays out specific criteria for an adequate warning, including a signal word, identification of the hazard, severity of the hazard, consequences and how to avoid the hazard under conditions of normal and reasonably anticipated use or misuse. HP never admits any risk of fire and explosion. A warning needs to be sufficiently explicit in order to motivate the user to protect themselves. It must be located where it is visible and alert the viewer in time to take appropriate action.

If HP believes any battery sold by a third party seller is unreasonably dangerous, there appears to be sufficient space on the AC adapter to provide an ANSI compliant label to warn users of this danger, yet no such label exists.

Where a battery pack included with the computer needs to be replaced, the statement on the OEM battery pack “replace with HP spares” is not adequate. At least one third party battery supplier calls their replacement batteries “HP spares.”

In late 2008, some HP notebooks incorporated a battery authentication system with a pop-up message to inform users that a counterfeit, non-HP battery was

detected. If the battery was purchased from a reseller, "contact HP." If HP believed that the counterfeit battery created an unreasonable risk of fire and explosion, they could have easily informed the user to remove the battery or shut down the computer. But they didn't.

Wm J. Kates
October 29, 2020

Compensation

Compensation for research and analysis is \$2450 per 8 hour day. Fees for deposition and trial are \$2950 per day.

Materials Reviewed

Complaint

Depositions of:

Thomas Power

David Pipho

John Wozniak

HP's Answers to Plaintiff's Interrogatories

HP's Responses to Plaintiff's Requests for Production of Documents

HP's Initial Disclosures Documents

Report by Kenneth J. Kutchek, P.E., March 16, 2020

Ross Township Fire Marshal Report

Medical Records

Photos of laptop

Plaintiff's Initial Disclosures and Exhibits

HP Battery Information Center / HP Official Site, <https://www8.hp.com>

SDS: HP Battery Packs -- Notebooks and Tablets, <http://h22235.www2.hp.com>

HP Power Management User Guide (HP000167, 000180)

HP Notebook PCs - 601 or 60X Error Displays on a Black Screen, <https://support.hp.com>

HP Store, <https://store.hp.com>

Solved: Can I use the laptop without the battery?, HP Support Community - 1208391
<https://h30434.www3.hp.com>

Genuine HSTNN-XB60 HSTNN-LB60 Battery for HP EliteBook 8540p 8540w
458274-421, [ebay.com](https://www.ebay.com)

Superb Choice 8-cell HP 458274-421 Laptop Battery
[walmart.com](https://www.walmart.com)

HP 458274-421 Battery
[duracelldirect.com](https://www.duracelldirect.com)

Laptop Battery Express HP Hewlett Packard
www.laptopbatteryexpress.com

Best HP EliteBook 8730w Battery --
HP Battery Replacement EliteBook 8730w Pack
<https://www.atlaptopbattery.co.uk>

HP EliteBook 8730w LHP228
[battdepot.com](https://www.battdepot.com)

HP Laptop Battery Troubleshooting Tips
[http://laptopbatteryone.com/hp-laptop-battery-troubleshooting-tips](https://www.laptopbatteryone.com/hp-laptop-battery-troubleshooting-tips)

Dell Laptop Battery -- Frequently Asked Questions
<https://www.dell.com>

Computer and Computer Peripheral Fires with a Discussion of Batteries
Fire Analysis and Research Division, National Fire Protection Association, August 2006

CPSC, Hewlett-Packard Company Announce Recall of Notebook Computer Batteries
October 14, 2005
www.cpsc.gov

HP Recalls Notebook Computer Batteries Due to Fire Hazard
April 20, 2006
www.cpsc.gov

PC Notebook Computer Batteries Recalled Due to Fire and Burn Hazard
October 30, 2008
www.cpsc.gov

Sony, HP, Dell, Toshiba Recall Thousands of Faulty Lithium-Ion Laptop Batteries
October 30, 2008
www.eweek.com

HP Recalls Notebook Computer Batteries Due to Fire Hazard
May 14, 2009
www.cpsc.gov

HP Expands Recall of Notebook Computer Batteries Due to Fire Hazard
May 21, 2010
www.cpsc.gov

HP Expands Recall of Notebook Computer Batteries Due to Fire Hazard
May 27, 2011
www.cpsc.gov

Hewlett-Packard Agrees to \$425,000 Civil Penalty for Failure to Immediately Report
Lithium-Ion Battery Packs
January 23, 2012
www.cpsc.gov

Dell Announces Recall of Notebook Computer Batteries Due to Fire Hazard
August 15, 2006
www.cpsc.gov

Zurich-American Technical Topics, Product Warnings, 1988

ANSI Z535.4 Standard for Product Safety Signs and Labels--2007

Westinghouse Product Safety Label Handbook

National Safety Council Product Safety Management Guidelines, 1989

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